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ABSTRACT

The learning assistance counselor at the college level should facilitate learning for students who have not developed their cognitive and literacy skills. To enrich the process of discovery in student learning, the counselor can direct students in the following textbook activities: practicing basic syllabifying skills on technical and scientific terms in a biology book; verifying work by referring to a dictionary; using glossaries and indexes to improve the recognition of units of meaning in words; examining the full meanings of words in dictionaries--their prefixes, roots, and suffixes; helping students identify the concept categories of their experience through reading; identifying basic concepts in textbooks; and developing outlining skills through the recognition of general and specific ideas. (HAI)

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The Job: To Get Mental Wheels to Roll

Leon E. Williamson

Many factors coalesced to make clear the need for learning assistant counselors on college campuses. The main factor was: The decline in cognitive and literacy skills prerequisite to scholastic success in college. The performances and successes of these students will determine how permanent college learning centers are. Many of these students, who failed to acquire these skills during 12 years of schooling, will come to our learning centers expecting a quick and effortless remediation. That is, they will be seeking the superficial remedies of speed reading, SQ3R, memorizing vocabulary in isolation, shallow exercises in outlining and note taking, etc. What these students need is a learning assistance counselor who has a greater depth and breadth of knowledge than does the traditional college instructor. He will find the slick trade materials on how to study at best only supplementary to his expertise. He will find his interest and concerns propelling him deeper and deeper into the study of concept development, semantics and the cognitive structure of knowledge. He will find introductory textbooks interesting reading and will analyze four or five for each discipline in order to compile their common vocabulary and concepts as well as to sensitize himself to the realtionships the abstract and concrete concepts have for each discipline. He will slowly and methodically acquire

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the knowledge necessary to direct students to create those "wheels" which are necessary to roll in a person's mind before he can learn. The "wheels" that must roll are those abilities necessary to see patterns in complex situations. Gray and Myers (1:413) suggest, "The reinvention of the wheel is an important principle of learning . . ." Unfortunately for many of our students, it is the invention and not the reinvention which is crucial. They have failed to respond for so long to the natural wheels of learning in their minds that they roll no more. The job of the learning assistance counselor is to get them rolling again -- a difficult but not an impossible job.

The activities developed by the learning assistance counselor should emphasize discovering rather than being told. Being told has failed because the human brain was not developed by being told. As Hart (2:393) says ". . . the human brain was not "designed" for schools. And schools, . . ., were not designed to fit the brain." Reviewing recent gains in brain research Hart makes 5 succinct comments about the role of the brain in learning. They are:

1. The human brain is intensely aggressive It seeks out, demands, and will accept only what it needs to "make sense" of surrounding reality, as it perceives that reality.

2. The brain is by no means the stimulus-response device presented in various behaviorist theories. We now know beyond question that it is elaborately "gated." That is, it will admit only those inputs it decides to admit, and each brain processes what it does admit in its own individual way. The processing depends greatly on the total, previous, stored experience in that particular brain.

3. The neocortex, the newest part of the brain, and in humans nearly five-sixths of the whole, does not function well under pressure.

4. Students must talk to learn well and rapidly, for a great portion of the brain is devoted to language.

5. The human brain has little use for logic. It is a computer of incredible power and subtlety, but far more analog than digital. It works not by ~~by~~ precision but probabilistically, by great numbers of often rough or even vague approximations.

How can a learning assistance counselor apply this new brain concept of learning? Let us focus on the material in the chapter: The Origin of Life in Curtis's (I) Invitation to Biology for the specific answer to this question. As we know some student needing learning assistance do not have the basic syllabifying skills essential to read the technical and scientific terms found in an introductory biology book. When it is determined that students do not have this skill, assign two or more students to work together to find words which will fit consonant (C)-Vowel (V) syllabic patterns. Syllabic division may be indicated by slashes. The task sheet may appear something like the following. Words which will fit the patterns are found under each entry.

Syllabifying Tasks

C-V-C/V/C-V-C/V/V-C Sagitarius	C-V/C-V/C-V-C Cytoplasm
C-V/C-V-C/V/C-V-C Hypothesis	C-V/C-V/V-C Helium
V-C/C-V-C/V/V-C Ambiguous	C-V/C-V/C-V-C Hydrogen

Students may be assigned to find words which fit syllabic patterns in textbook chapters, glossaries and indexes. It is suggested that they begin with glossaries, then go to indexes and last to chapters. Always have these tasks centered in their textbooks. Have students verify their work by referring to a dictionary. Instruct them to check their words against the phonetic

spelling in parenthesis to the right of the bold type for each word in the dictionary. Be patient with the students. They will not know how to use all facets of the dictionary.

Another word attack skill, students may use glossaries and indexes to improve recognizing of morphemes or units of meaning in words. Gilliland (4:160) indicates a student can decode a word faster when he recognizes the prefixes, combining forms and suffixes than by syllabification. And, the recognition of meaning bearing units provides semantic value as well as syllabifying cues. A few prefixes and combining forms with their meanings and examples are:

Prefixes	Meanings	Examples	Combining Forms	Meanings	Examples
a-	without, not lacking	atom amoral	apt adip	to fit fat	adaptation adiposity
ab-	away, from	abstain	aer	air	anaerobic
	from off, down	abnormal	allo, all	variation	allogamy
ad-	motion toward, addition to, nearness to	advance admit		departure from the normal, reversal	allomorph
amphi-	on both sides, on both ends, around or about, of both kinds	amphibiotic amphistylar amphipod	andro angio	man, male seedcase, blood vessel	androgen angiology angiosperm
an-	not, without	anemia	auto	self	autologous
			bio	life, of living things	antibiotics biology

After students have found the words, they can write definitions for them. Have them check their definitions against those in the dictionary. They will discover that even with those morphemes which are vague approximations of what the words mean that they were mentally capable of projecting acceptable definitions for the words as they were used in the book. Yes, students will discover what their minds can really do with rough or even vague approximations.

Many students fail to use the full "power" of the dictionary. For example, Webster's New World Dictionary of the American Language, College Edition, for the entry: concept suggests that the word: conceive will show that the prefix: con- means together in the word concept and that the combining form cept means to take. Thus, concept literally means to take together. That is exactly what a concept is. It refers to items man has mentally taken together under categories like animal, plant, food, furniture, freedom, etc.

It is important that students become aware of the literal meanings of the morphemes in technical and scientific terms since it will help them to mentally visualize the conceptual relationships and actions these words represent. Too often students respond to these terms in a general or non-specific manner which prevents them from enjoying the mental images necessary for full understanding. Can you imagine how dull learning would be for your mind if you responded to every word as if it represented no more mental actions and colors than the word the has? It would be quite dark or boring in our minds wouldn't it? Unfortunately, this is how dark the minds of some of our students remain while they read their textbooks.

The job of the learning assistance counselor is to help students turn on the colors of thought in their minds. Once the colors are on, speed reading, outlining, notetaking, and even efficiently scheduling of time will come. These will never come as long as their minds remain dark when reading or in class lectures. Recall the importance of student talking in learning. It is important because only through their language will the wheels of thought roll in their minds. Language rolls best on conceptual axes.

What are conceptual axes? They are the categories in which man places the phenomena he experiences through one or more of his senses. How many are there? Laffal (5) identifies 118 for the English language. Let us focus on the following paragraph to introduce the concepts out of the 118 which are referred to and must be understood to appreciate its content.

> The earliest cells were probably heterotrophs, that is, organisms that depend on outside sources of organic molecules for their energy. Organisms that can use the sun's energy directly to make organic molecules are known as autotrophs. The most familiar of the modern autotrophs are green plants. (1:22)

The concepts referred to are:

1. PAST -- References to the past and to age. Included are such ideas as: ancient and historical, bygone and old; . . . (5:27)
   (The earliest . . .)

2. LIVE -- References to living and abiding. Included are such ideas as: existence and life; . . .; organism and animate. (5:25)
   (cells, organisms)

3. BUG -- References to insects and microscopic animals and organisms such as ants, worms, butterflies, bacteria and germs. (5:21)
   (heterotrophs, autotrophs)

4. HEAT -- References to heat and warmth. Ideas included are: fire and fuel; . . .; sun and summer (5:24)
   (sun's energy)

5. FOOD -- References to eating and to food (5:23)
   (heterotrophs, autotrophs)

6. MTRL -- References to basic materials other than fabrics, and to substances out of which other products are made . . . Such materials as woods, metals, chemicals, oils and plastics are included in MTRL. (5:26)
   (organic molecules, sources)

7. VEGT -- References to vegetation and to plant products. Included are fruits, grains, vegetables, flowers, trees . . . (5:30)

8. AID -- The underlying ideas are those of help, advantage and support. (5:20) (depend)

9. SOME -- References to a segment, a few and to possibility. (5:29) (probably)

10. NSCR -- "No score" words. Included in the NSCR category are grammatical function words such as articles and auxiliary verbs, and a variety of prepositions, conjunctions and relative pronouns which have little independent content reference. (5:27) (The, that, on, of, for, can, to, as)

Unfortunately, too many words are "no score" words for our students. They are no score words because the students focus on the words and not the concepts behind them. Using Laffal's A Concept Dictionary of English as a reference source, groups of students could see how many of the 118 basic concepts they can find in chapters of their textbooks. This will require thinking which they will enjoy once they put aside the perception of themselves that they need a teacher to think for them.

In addition to getting students to recognize the basic concepts in their textbooks, we should develop activities which will enable them to discover the relationships between the abstract and concrete concepts they should manipulate mentally in their studies. A good outline shows the relationship among the more general or abstract concepts and the more specific or concrete concepts presented in a lecture, a chapter, or a book. An outline entry for a Roman numeral level is usually very general or abstract in relationship to an entry for a (I) entry. Thus, the entry mammal is more abstract than the entry bovine; the entry bovine is more abstract than the entry Hereford. If students were asked to think of a mammal, the responses could diverge all the way from whale to mouse with the inclusion of man, horse, fox, elephant, lion,

etc. For bovine the responses could include: Zebu, Chartley, Hereford, Aberdeen Angus, Ayrshire, Friesian, Jersey, Guernsey, etc. However, to get a mental image of a Herford requires a specific knowledge of the characteristics of a Herford. The more specific we become, the more expert we are. Remember, the closer the entries are to the Roman numerals the more inclusive they are; the farther away the more exclusive.

Learning assistance counselors may successfully teach students to use outlining skills by, at first, providing them with an outline format appropriate for the material in a chapter plus a list of items for the outline. Permit a group of students to decide which items in the list will go in the Roman numeral (I, II, III) levels; the capital letter (A, B, C) levels; Arabic numerals (1, 2, 3); small letters (a, b, c); Arabic numerals set off with a parenthesis to the right (1), 2), 3)); small letters set off with a parenthesis to the right (a), b), c)); Arabic numerals set off in a set of parenthesis ((1), (2), (3)) and small letters set off in a set of parenthesis ((a), (b), (c)).

Students should focus on general (abstract) and specific (concrete) ideas when deciding on which level to place each item. After students can do this, they should be able to take an outline format prepared for a particular chapter, read the chapter and find the appropriate items for the outline. And, after enough practice at this, they should be assigned to read chapters and develop their own outlines. Remember, permit students to work in groups. However, initially you should provide the structure for the discussions.

The role of the college learning assistance counselor is to get the wheels of thought rolling in their students' minds. The above activities can be a beginning for many students.

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